

A NEW SUBSPECIES OF LYMNAEA STAGNALIS FROM MONTANA

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In recent years, extensive collecting of land and fresh-water mollusks in western Montana has resulted in many range extensions and several new varieties of recent Mollusca. The subspecies here described represents one of these new varieties.

LYMNAEA STAGNALIS BRUNSONI new subspecies. Page 124, figs. 1-5

Shell (figs. 1, 2) medium in size, color light horn; surface with fine impressed growth lines. Whorls $5\frac{1}{2}$, flat-sided; sutures indistinct; body whorl large, rounded. Spire acute, the nuclear whorl rounded. Aperture roundly ovate, elongate in immature shells. Inner lip folded over columella leaving a narrow umbilical chink. Columella with distinct plait.

Holotype: Height 28.5 mm.; width 16.0 mm.; aperture length 17.2 mm.; aperture width 11.9 mm. USNM 683584. Paratypes in the Invertebrate Museum, Department of Zoology, University of Montana, and the collection of the author.

Measurements of paratypes are as follows, in mm.:

Height	Width	Aperture Length	Aperture Width
27.3	14.8	17.0	11.1
27.7	14.8	15.6	10.8
25.4	14.8	15.5	10.6
25.3	14.5	14.9	10.5
24.9	13.8	13.9	9.7
24.4	13.6	15.3	10.3
23.7	13.5	13.7	9.7
23.2	13.8	13.9	10.0
23.2	13.2	13.8	9.5
22.5	12.2	12.8	8.6
21.9	11.8	12.8	8.7
21.2	12.5	12.8	9.0

Type locality: East shore of Flathead Lake, north of point of land at Yellow Bay; 18 miles north of Polson, Lake County, Montana. Township 24 N., Range 19 W., Section 4, Principle Meridian, Montana. Elevation 2983'. Collected during a period of extremely low water. Found 8-10 feet below usual lake level. March 26, 1966.

Animal: Mantle dark with white patches. Body grey, foot broad; tentacles broadly triangular. Other characteristics as in *L. stagnalis appressa*.

Radula and Jaw: Radula (fig. 3) with 11 laterals, first lateral tricuspid in some specimens. Mesocone of seventh lateral long and acute, becoming smaller in laterals eight through eleven. Entocone of intermediates with one to four cusps. Entocone of marginals one through 7 having from 3 to 6 cusps. Marginals 8 through 23 show a gradual reduction in the number of cusps. Formula: 23/4-6 + 3/3-4 + 11/2 + 1/1 + 11/2 + 3/3-4 + 23/4-6 (37-1-37). In some specimens the central tooth shows a small cusp on the right side of the main cusp. Superior jaw (fig. 4) well-arched, higher than in *L. stagnalis appressa*. Median cusp worn and indistinct.

Genitalia (fig. 5): Similar to *L. stagnalis appressa*. The penis sheath retractor is inserted in the posterior preputium retractor. The preputium retractors consist of two heavy muscles. Protractors two in number. Vas deferens about seven times the length of the penis sheath and preputium. Length of preputium in holotype 3.88 mm., penis sheath 1.15 mm., vas deferens 36 mm.

Remarks: This race resembles in shell characters the Great Lakes *L. stagnalis sanctaemariae* Walker and *L. s. occidentalis* Hemphill from Lake Whatcom, Washington. However, the characters of the genitalia and radula are closer to F. C. Baker's *L. stagnalis lillianae*.

The cosmopolitan occurrence of *Lymnaea stagnalis* is probably the result of a southward ingression from a circumboreal distribution. The northern populations of this species were adversely affected by glaciation during the Pleistocene as were many other animals and plants. Few of the organisms which did survive this period were able to compete with and remain distinct from those which later moved into these areas. *Lymnaea stagnalis brunsoni* lives in a restricted environment which has existed from preglacial times. Anatomical and shell characters are unique among North American *Lymnaeas*, and some features are closer to the European forms of *Lymnaea stagnalis*. *Lymnaea stagnalis brunsoni* represents a microgeographical race and can be considered as a Pleistocene relict, probably restricted to Flathead Lake.

This subspecies is named after Dr. Royal Bruce Brunson of the Department of Zoology, University of Montana.
